

Developing of a Sodium Lidar for Sapceborne Missions Project

Completed Technology Project (2012 - 2017)



Project Introduction

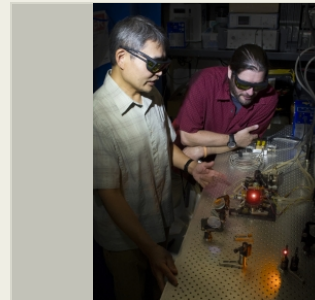
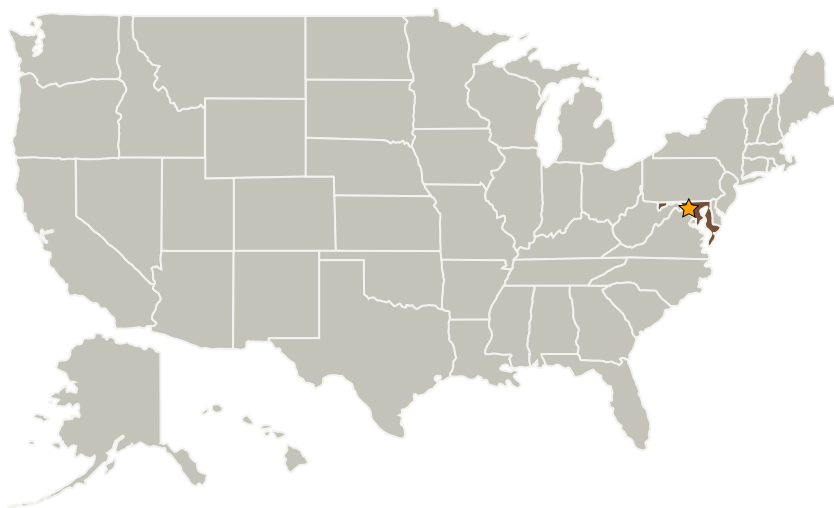
The Development of a Sodium Lidar for Spaceborne Missions is a development project to build a narrow linewidth, tunable laser transmitter. It will utilize a modeling approach to perform key measurements of the Earth's mesosphere.

The Development of a Sodium Lidar for Spaceborne Missions project is a demonstration of Na LIDaR technology to provide key measurements that elucidate the complex relation between the chemisty and dynamics of the Earth's mesosphere. The Earth's mesosphere lies 40 to 110 miles above the Earth's surface. This modeling of the complex relationship is essential for weather and climate prediction in the lower atmosphere.

Anticipated Benefits

Modeling could aid in analysis of atmospheric composition and dynamics

Primary U.S. Work Locations and Key Partners

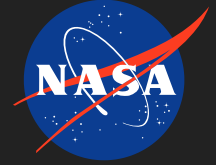


Goddard scientist Diego Janches and his colleague, Goddard technologist Tony Yu.

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| Organizations Performing Work | Role | Type | Location |
|------------------------------------|-------------------|-------------|---------------------|
| ★Goddard Space Flight Center(GSFC) | Lead Organization | NASA Center | Greenbelt, Maryland |

Primary U.S. Work Locations

Maryland

Project Transitions

▶ **October 2012:** Project Start

✓ **September 2017:** Closed out

Closeout Summary: The purpose of the Goddard Space Flight Center's Internal Research and Development (IRAD) program is to support new technology development and to address scientific challenges. Each year, Principal Investigators (PIs) submit IRAD proposals and compete for funding for their development projects. Goddard's IRAD program supports eight Lines of Business: Astrophysics; Communications and Navigation; Cross-Cutting Technology and Capabilities; Earth Science; Heliophysics; Planetary Science; Science Small Satellites Technology; and Suborbital Platforms and Range Services. Task progress is evaluated twice a year at the Mid-term IRAD review and the end of the year. When the funding period has ended, the PIs compete again for IRAD funding or seek new sources of development and research funding or agree to external partnerships and collaborations. In some cases, when the development work has reached the appropriate Technology Readiness Level (TRL) level, the product is integrated into an actual NASA mission or used to support other government agencies. The technology may also be licensed out to the industry. The completion of a project does not necessarily indicate that the development work has stopped. The work could potentially continue in the future as a follow-on IRAD; or used in collaboration or partnership with Academia, Industry and other Government Agencies. If you are interested in partnering with NASA, see the TechPort Partnerships documentation available on the TechPort Help tab. <http://techport.nasa.gov/help>

Organizational Responsibility

Responsible Mission Directorate:

Mission Support Directorate (MSD)

Lead Center / Facility:

Goddard Space Flight Center (GSFC)

Responsible Program:

Center Independent Research & Development: GSFC IRAD

Project Management

Program Manager:

Peter M Hughes

Project Manager:

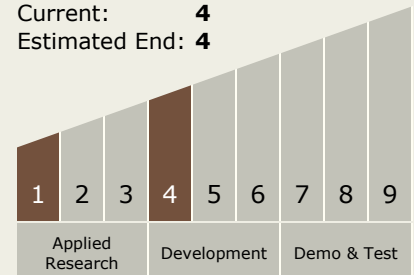
Nikolaos Paschalidis

Principal Investigator:

Diego Janches

Technology Maturity (TRL)

Start: 1
Current: 4
Estimated End: 4

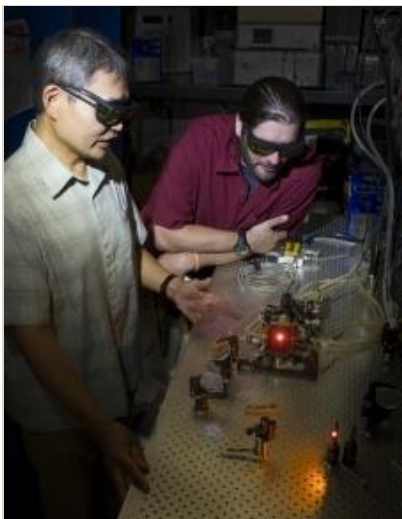


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Images



Sodium Lidar for Spaceborne Missions

Goddard scientist Diego Janches and his colleague, Goddard technologist Tony Yu.

(<https://techport.nasa.gov/image/3493>)

Project Website:

<http://www.nasa.gov/content/goddard/nasa-advances-worlds-first-spaceborne-sodium-lidar/>

Technology Areas

Primary:

- TX08 Sensors and Instruments
 - └ TX08.1 Remote Sensing Instruments/Sensors
 - └ TX08.1.5 Lasers

Target Destinations

Earth, Mars